

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Toshiyuki MAEDA et al.

Before the Board of Appeals

Application No.: 10/582,936

Confirmation No.: 9823

Filed: June 15, 2006

Art Unit: 2838

For: CURRENT SUPPLY CIRCUIT,
POLYPHASE DRIVE CIRCUIT,
METHOD OF DESIGNING CURRENT
SUPPLY CIRCUIT

Examiner: H. R. Behm

REPLY BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant submits herewith a Reply Brief as required by 37 C.F.R. § 1.192. This Reply Brief responds to the Examiner's Answer dated November 13, 2009.

In addition, to those arguments present in Appellants' Appeal Brief filed on September 4, 2009, Appellants present the following comments/argument in response to the Examiner's Answer.

At the outset, Appellants note the Examiner's withdrawal of the rejection of claims 11-13.

Regarding the rejection of claims 1-10 and 14-15, the Examiner provides a more comprehensive explanation of his interpretation of the claimed invention and cited prior art. More specifically, the Examiner asserts that the claimed "first breakdown voltage" is interpreted to be "a DC voltage value for a topology with or without a voltage doubler in which the inverter receives the voltage value from the rectifier." (Answer p. 15) In other

words, the Examiner interprets the claimed first breakdown voltage to be equal to the rectified DC voltage (whether doubled or not). Appellants respectfully disagree with the Examiner's interpretation.

Independent claim 5 recites "selecting said switching element having a second breakdown voltage based on said rated current value, said second breakdown voltage being twice a first breakdown voltage *required* of said switching element when a DC voltage obtained by performing full-wave rectification on said AC voltage is input to said polyphase inverter circuit." Therefore, the first breakdown voltage is not equal to the rectified DC voltage as asserted by the Examiner but rather the first breakdown voltage is equivalent to the breakdown voltage required for the rectified DC voltage. One skilled in the art would readily appreciate that if the breakdown voltage was equal to the rectified DC voltage then the switching element would be ineffective because under normal operating parameters the voltage would reach the breakdown voltage. It is exactly for this reason that the conventional/required breakdown voltage is always greater than the rectified DC voltage. This is further evidenced by the Toshiba reference which teaches that for a 600V input the conventional IGBT is rated for 1200V (i.e., the first breakdown voltage), but because even the conventional 1200 breakdown voltage can be approached, an IGBT having an even greater rating, i.e., 1700, is utilized.

Although, 1200V IGBTs were known in the art and Toshiba teaches increasing the IGBT rating from 1200V to 1700V, nowhere in the cited prior art is there any teaching of selecting the switching element to have a second breakdown voltage based on the rated current value, said second breakdown voltage being twice a first breakdown voltage *required* of said switching element when a DC voltage obtained by performing full-wave rectification on said AC voltage is input to said polyphase inverter circuit as claimed.

Finally, the Examiner argues that Appellants arguments are unsupported by the Specification because only a 1200V breakdown voltage is disclosed. Appellants respectfully disagree. Although the embodiments disclosed in the Specification are

limited to 600V and 1200V breakdown voltages, Appellants arguments are still supported by the Specification because the Specification taken as a whole teaches a first breakdown voltage of 600V and a second breakdown voltage of 1200V which is twice the first.

For at least those reasons presented in Appellants' Appeal Brief and the additional comments presented above, Appellants respectfully request the Examiner's rejection of claims 1-10 and 14-15 be reversed.

Dated: January 12, 2010

Respectfully submitted,

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